



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION IX**

75 Hawthorne Street  
San Francisco, CA 94105

**MAY 17 2011**

Ms. Angela Colamaria  
U.S. Department of Energy  
1000 Independence Avenue, SW  
Washington, DC 20585  
Loan Guarantee Program (LP-10)

Subject: Draft Environmental Impact Statement for a Proposed Federal Loan Guarantee to Support Construction of the Topaz Solar Farm, San Luis Obispo County, California

Dear Ms. Colamaria:

The U.S. Environmental Protection Agency (EPA) has reviewed the March 2011 Draft Environmental Statement (DEIS) for a proposed Federal Loan Guarantee to Support Construction of the Topaz Solar Farm, San Luis Obispo County, California. Our comments are provided pursuant to the National Environmental Policy Act (NEPA), Council on Environmental Quality (CEQ) regulations (40 CFR Parts 1500-1508), and our NEPA review authority under Section 309 of the Clean Air Act.

EPA supports increasing the development of renewable energy resources, as recommended in the National Energy Policy Act of 2005. Using renewable energy resources such as solar power can help the nation meet its energy requirements without generating greenhouse gas emissions. We have consistently encouraged the siting of renewable energy projects on disturbed, degraded, and contaminated sites, rather than large tracts of undisturbed public lands, and we commend the proposed siting of the Topaz Solar Farm on lands previously disturbed by agriculture. We were also pleased to see that operation of the proposed project would require very little water, since, according to the DEIS, there will be no need to wash the solar modules. We thank you for arranging a site visit and greatly appreciate the time spent by Topaz Solar Farms to provide a tour of the project area. Our lead reviewer of the DEIS was able to gain a greater understanding of the project and its potential impacts as well as some of the proposed avoidance measures and mitigations that were being developed.

While acknowledging the substantial benefits of the proposed project, EPA has some concerns regarding the proposed Project's impact on aquatic and biological resources and the need for additional information to reflect updated proposed alternatives, mitigations, and measures to avoid potential and cumulative impacts. We have rated the Draft EIS as EC-2 – Environmental Concerns-Insufficient Information (see enclosed "Summary of Rating Definitions and Follow-Up Action"). We understand that a revised Alternative 3B.1 was submitted to the County of San Luis Obispo on March 31, 2011, which could reduce the environmental impacts of this project. We encourage the Department of Energy (DOE) to

work with the project proponent to fully incorporate and evaluate the proposed revised Alternative 3B.1 into the Final Environmental Impact Statement (FEIS). In addition, EPA recommends that the FEIS identify any additional measures to avoid significant impacts and provide additional analyses (including any necessary documentation), as appropriate, regarding the issues identified in the attached detailed comments. Analyses of key resource areas, such as jurisdictional waters of the United States, impacts to threatened and endangered species, and identification of compensatory mitigation lands, should be completed as early as possible to determine the project's viability and avoid unnecessary project delays.

We appreciate the opportunity to review this Draft EIS and are available to discuss our comments. Please send one hard copy of the Final EIS and two CD ROM copies to this office at the same time it is officially filed with our Washington D.C. Office. If you have any questions, please contact me at (415) 972-3521, or contact Anne Ardillo, the lead reviewer for this project. Anne can be reached at (415) 947-4257 or [ardillo.anne@epamail.epa.gov](mailto:ardillo.anne@epamail.epa.gov)

Sincerely,

A handwritten signature in black ink, appearing to read 'Kathleen Martyn Goforth', with a stylized flourish at the end.

Kathleen Martyn Goforth  
Environmental Review Office

Enclosures: EPA Summary of Rating Definitions and Follow-Up Action  
EPA Detailed Comments

cc: Steven McMasters, Project Manager, County of San Luis Obispo

## **SUMMARY OF EPA RATING DEFINITIONS\***

This rating system was developed as a means to summarize the U.S. Environmental Protection Agency's (EPA) level of concern with a proposed action. The ratings are a combination of alphabetical categories for evaluation of the environmental impacts of the proposal and numerical categories for evaluation of the adequacy of the Environmental Impact Statement (EIS).

### **ENVIRONMENTAL IMPACT OF THE ACTION**

#### ***"LO" (Lack of Objections)***

The EPA review has not identified any potential environmental impacts requiring substantive changes to the proposal. The review may have disclosed opportunities for application of mitigation measures that could be accomplished with no more than minor changes to the proposal.

#### ***"EC" (Environmental Concerns)***

The EPA review has identified environmental impacts that should be avoided in order to fully protect the environment. Corrective measures may require changes to the preferred alternative or application of mitigation measures that can reduce the environmental impact. EPA would like to work with the lead agency to reduce these impacts.

#### ***"EO" (Environmental Objections)***

The EPA review has identified significant environmental impacts that should be avoided in order to provide adequate protection for the environment. Corrective measures may require substantial changes to the preferred alternative or consideration of some other project alternative (including the no action alternative or a new alternative). EPA intends to work with the lead agency to reduce these impacts.

#### ***"EU" (Environmentally Unsatisfactory)***

The EPA review has identified adverse environmental impacts that are of sufficient magnitude that they are unsatisfactory from the standpoint of public health or welfare or environmental quality. EPA intends to work with the lead agency to reduce these impacts. If the potentially unsatisfactory impacts are not corrected at the final EIS stage, this proposal will be recommended for referral to the Council on Environmental Quality (CEQ).

### **ADEQUACY OF THE IMPACT STATEMENT**

#### ***"Category 1" (Adequate)***

EPA believes the draft EIS adequately sets forth the environmental impact(s) of the preferred alternative and those of the alternatives reasonably available to the project or action. No further analysis or data collection is necessary, but the reviewer may suggest the addition of clarifying language or information.

#### ***"Category 2" (Insufficient Information)***

The draft EIS does not contain sufficient information for EPA to fully assess environmental impacts that should be avoided in order to fully protect the environment, or the EPA reviewer has identified new reasonably available alternatives that are within the spectrum of alternatives analysed in the draft EIS, which could reduce the environmental impacts of the action. The identified additional information, data, analyses, or discussion should be included in the final EIS.

#### ***"Category 3" (Inadequate)***

EPA does not believe that the draft EIS adequately assesses potentially significant environmental impacts of the action, or the EPA reviewer has identified new, reasonably available alternatives that are outside of the spectrum of alternatives analysed in the draft EIS, which should be analysed in order to reduce the potentially significant environmental impacts. EPA believes that the identified additional information, data, analyses, or discussions are of such a magnitude that they should have full public review at a draft stage. EPA does not believe that the draft EIS is adequate for the purposes of the NEPA and/or Section 309 review, and thus should be formally revised and made available for public comment in a supplemental or revised draft EIS. On the basis of the potential significant impacts involved, this proposal could be a candidate for referral to the CEQ.

\*From EPA Manual 1640, Policy and Procedures for the Review of Federal Actions Impacting the Environment.

**US EPA DETAILED COMMENTS ON THE DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR A PROPOSED FEDERAL LOAN GUARENTEE TO SUPPORT CONSTRUCTION OF THE TOPAZ SOLAR FARM, SAN LUIS OBISPO COUNTY, CALIFORNIA, MAY 17, 2011**

**Alternative 3B.1**

As part of the alternatives analyses, the DEIS presents and analyzes two overlapping study areas - Study Area A and Study Area B. We understand that, on March 31, 2011, the project proponent Topaz Solar Farms LLC/First Solar submitted Alternative 3B.1, which delineates a new project boundary and engineering layout. We understand that this alternative would, if developed and approved, reduce the project footprint from approximately 4000 acres to 3,500 acres, thereby lessening the impacts to San Joaquin kit fox, tule elk, and pronghorn antelope, while avoiding the loss of 1,500 acres of Williamson Act lands; however, while the new alternative layout is documented in the Final Environmental Impact Report (FEIR) Executive Summary, it is not evaluated in the Draft EIS. We have not been able to review this new layout relative to the proposed Topaz Solar Project, the other build alternatives, or the no action alternatives, which are evaluated in the Draft EIS.

***Recommendation:***

Include Alternative 3B.1 in the FEIS and present it in a format comparable to that of the other alternatives, so that its impacts can be fully disclosed to the public and decision-makers.

**Water Resources**

In our scoping comments (November 22, 2010), the U.S. Environmental Protection Agency (EPA) noted that the project applicant should coordinate with the U.S. Army Corps of Engineers (Corps) to determine if the proposed project requires a Section 404 permit under the Clean Water Act (CWA). The purpose of the CWA is to restore and maintain the chemical, physical, and biological integrity of waters of the United States (waters of the U.S., WUS, or jurisdictional waters). These goals are achieved, in part, by prohibiting discharges of dredged or fill material that would result in avoidable or significant adverse impacts on the aquatic environment. Pursuant to Section 404 of the CWA, discharge of dredged or fill material to WUS requires a permit issued by the Corps. If a permit is required, EPA will review the project for compliance with the *Federal Guidelines for Specification of Disposal Sites for Dredged or Fill Materials* (40 CFR 230) (Guidelines), promulgated pursuant to Section 404(b)(1) of the CWA. The burden to demonstrate compliance with the Guidelines rests with the permit applicant.

The DEIS states that the Corps has determined that Waters of the US potentially *will* be filled by the proposed Project and the Project Proponent has been directed to apply for a CWA Section 404 Standard Individual Permit. (p. 1-5). The DEIS also states that consultants conducted a jurisdictional delineation at the project site between 2008 and 2010. (p. 3-84). Based on the delineation, the project could impact ephemeral drainages, which are subject to Corps jurisdiction. According to the DEIS, Study Area A contains 31 ephemeral drainages (15 acres) and Study Area B contains 12 ephemeral drainages (10 acres). A copy of the jurisdictional delineation, however, was not provided in the EIS for review. A complete assessment of the potential effects to jurisdictional waters and wetlands cannot be completed without this information.

It is our understanding that Alternative 3B.1 would generate the same amount of electricity (550 MWs) as the Study Area A and Study Area B alternatives while occupying a more compact footprint. The solar

panel arrays and collection poles, however, would be placed in jurisdictional waters and along the edges of the 100-year floodplain – with the estimated fill into jurisdictional waters being 750 cubic yards (FEIR, p. ES-27). EPA is concerned with the potential increased impacts to jurisdictional waters if Alternative 3B.1 is selected, particularly since this alternative was not evaluated in the DEIS and the extent of the potential impacts remains unclear.

The DEIS notes that the proposed Project area contains jurisdictional wetland features such as vernal pools and ephemeral wetland depressions totaling 3.11 acres in Study Area A and 0.71 acres in Study Area B. Jurisdictional wetlands would be avoided by buffers or setbacks ranging from 250 feet for vernal pools and ephemeral wetland depressions containing listed fairy shrimp, to 50 feet for vernal pools and 25 feet for wetlands, depressions, and natural non-wetland pools (p. 2-50, table 2-9). The DEIS also states that construction of road crossings and underground electrical collection system trenches would result in the permanent loss of less than 0.1 acre of jurisdictional drainages, and that the project will have 22 miles of on-site access roads (p. S-5), some of which may impact jurisdictional crossings. According to the DEIS, most of the soils in the Study Area A are classified as moderately susceptible to wind erosion and sheet and rill water erosion, and all of the soils in Study Area B are classified as moderately susceptible to wind erosion and sheet and rill water erosion. (pp. 3-75, 77)

*Recommendations:*

The FEIS should demonstrate the project's compliance with the CWA Section 404(b)(1) Guidelines and include a final determination of the extent of jurisdictional waters at the project site.

Consult with the Corps regarding the impacts to jurisdictional waters that would result from Alternative 3B.1 and coordinate with the Corps to reduce impacts. Include the results in the FEIS.

The FEIS should commit to the use of natural washes, in their present location and natural form, and with adequate natural buffers, for flood control to the maximum extent practicable.

The FEIS should include the jurisdictional wetlands setbacks for Alternative 3B.1.

The FEIS should demonstrate that the project layout will avoid redundancy of arterial and perimeter roads and minimize jurisdictional crossings. The DEIS states that at-grade articulated concrete blanket crossings will be used at jurisdictional crossings. EPA commends the use of such structures, which, like Arizona crossings, match the contours of the existing drainages and retain the historical range of conditions.

The FEIS should demonstrate that downstream flows will not be disrupted due to proposed changes to any natural washes, nor disrupt or excavate large amounts of sediment.

Floodplain Management

The DEIS states, per Flood Insurance Rate Maps (FIRM), that portions of the project footprint may be in a Zone A (100 year) floodplain. It also states that road crossings and overhead and underground electrical collection lines would be installed in FEMA designated Zone A floodplains; and as noted above, Alternative 3B.1 would move solar arrays closer to the floodplains. Executive Order 11988



(Floodplain Management) requires federal agencies to avoid, to the extent possible, the long and short-term adverse impacts associated with the occupancy and modification of floodplains, and to avoid direct and indirect support of floodplain development wherever there is a practicable alternative.

*Recommendations:*

Include in the FEIS an evaluation of the project Alternative 3B.1 to demonstrate the project's compliance with Executive Order 11988.

Include in the FEIS the most up to date information available regarding any consultation with the appropriate agencies regarding floodplain impacts and avoidance.

Compensatory Mitigation

The DEIS describes mitigation strategies based on mitigation ratios associated with land use, special species, and aquatic resources through acquisition of compensatory lands and habitat restoration. The applicant proposes to mitigate for the San Joaquin kit fox loss of habitat by acquiring off-site lands that will be restored to annual grassland and managed to promote kit fox and other native species. Mitigation ratios such as 1:1, 2:1 and 4:1 are used to calculate the amount of mitigation land needed to compensate for impacted cropland and grassland acreage (p. 3-181). Mitigation for loss of jurisdictional ephemeral drainage habitat will be through in-kind habitat restoration of a portion of the main drainage at a minimum of 2:1, and compensation for permanent impacts on vegetative communities will be at 1:1. No rationale or detailed explanation is provided, however, on how the ratios were derived or what standard was used. In addition, EPA understands that the applicant has submitted an updated mitigation plan to the County of San Luis Obispo that utilizes a "stacking" approach in which the acquired lands will serve to mitigate biological impacts while allowing managed grazing to fulfill agricultural needs. Adjacent off-site mitigation lands have been identified totaling approximately 11,000 acres.

The DEIS states that, as a part of the Environmental Protection Measures, a Habitat Mitigation and Monitoring Plan will be developed (p. 3-177). The goals of a mitigation plan are to provide a framework that guides mitigation planning and implementation through all development phases, and to ensure that there is no net loss of acreage or functions/values from the implementation of the plan. Since the applicant proposes to mitigate impacts for a wide array of species, criteria should be developed and implemented to monitor conservation effectiveness for each species.

*Recommendations:*

Incorporate, into the FEIS, compensatory mitigation proposals (including quantification of acreages, estimates of species protected, costs to acquire compensatory lands, etc.) for unavoidable impacts to waters of the United States and biological resources, such as San Joaquin kit fox, tule elk, pronghorn antelope, burrowing owl, mountain plover, Kern sphinx moth, american badger, and other native species. Consider consolidating this information in a table format, which may enable a clearer understanding of the total compensatory mitigation strategy.

Incorporate, into the FEIS, the Habitat Mitigation and Monitoring Plan that results from consultation with the US Fish and Wildlife Service, California Department of Fish and Game, and other regulatory agencies. Include a Managed Grazing Plan.

Clarify the rationale for mitigation ratios for San Joaquin kit fox habitat, vegetative communities, and aquatic resources and how these relate to the mitigation ratios recommended by other agencies, as well as how they relate to mitigation ratios used for other renewable energy projects in California.

Specify, in the FEIS, provisions that will ensure habitat selected for compensatory mitigation will be protected in perpetuity.

Consider adopting a formal adaptive management plan to evaluate and monitor impacted resources and ensure the successful implementation of mitigation measures. EPA recommends that DOE review the discussion on Adaptive Management in the NEPA Task Force Report to the Council on Environmental Quality (CEQ) on *Modernizing NEPA*.

### Cumulative Impacts

Cumulative impacts are defined in the Council on Environmental Quality's (CEQ) NEPA regulations as "the impact on the environment that results from the incremental impact of the action when added to the other past, present, and reasonable foreseeable future actions, regardless of what agency (Federal or non-Federal) or person undertakes such actions (40 CFR Part 1508.7)". We acknowledge that the DEIS identifies and lists (Table 3-31) 6 projects, and provides a brief description of the cumulative impacts associated with said projects; however, the DEIS does not fully assess and quantify cumulative impacts associated with the proposed Project, and does not sufficiently link the Project's effects to the health of the affected resources. The DEIS relies on the proposed Project's mitigation measures to demonstrate no significant contribution of cumulative impacts to the Carrizo Plain and surrounding area. In addition, a full and thorough analysis of the PG&E reconductoring project is not included in the cumulative impacts assessment. Lastly, the cumulative impacts analysis does not include a discussion of the potential effects of climate change on the proposed Project and the Carrizo Plain area.

#### *Recommendations:*

Conduct a thorough cumulative impacts assessment for the FEIS. EPA recommends using the California Department of Transportation Indirect and Cumulative Impacts Analysis, which is co-authored by EPA and is applicable to impact analyses for both road and non-road projects. This guidance can be found at [[http://www.dot.ca.gov/ser/cumulative\\_guidance/purpose.htm](http://www.dot.ca.gov/ser/cumulative_guidance/purpose.htm)] and [[http://www.dot.ca.gov/ser/Growth-related\\_IndirectImpactAnalysis/gri\\_guidance.htm](http://www.dot.ca.gov/ser/Growth-related_IndirectImpactAnalysis/gri_guidance.htm)]. The guidance will assist in identifying cumulative impacts and preparing an analysis that is sound and well documented.

The FEIS should provide a substantive discussion of, and quantify where possible, the cumulative effects of the project when considered with other past, present, or reasonably foreseeable projects, including the PG&E reconductoring project, regardless of what agency or person undertakes those actions (see 40 CFR Section 1508.7). The document should also propose mitigation for all cumulative impacts, and clearly state the lead agency's mitigation responsibilities and the mitigation responsibilities of other entities.

## Biological Resources

### *Avoidance of Nesting Birds*

The DEIS states that, if nesting birds are located, no construction activities shall occur within 100 feet of nests until chicks are fledged (p. 2-51). PG&E Connected Action Applicant Proposed Measures BO 8, 10 (Appendix B) propose a greater distance for larger birds, such as 250 feet for burrowing owls or 500 feet for raptor nests.

#### *Recommendation:*

The applicant should consider prohibiting construction activities within the greater area proposed in PG&E Connected Action Applicant Proposed Measures BO 8, 10 when large nesting birds are located.

### *Studies and Plans*

The DEIS states that several surveys and plans were not completed before publication. Some of these include: Kern sphinx moth survey, Final Vegetation Management Plan, Construction Activity Management Plan, Avian Protection Plan, Hazardous Materials Storage Plan, and Spill Response Plan.

#### *Recommendation:*

The FEIS should include the results of all field surveys conducted for this project and complete management and species protections plans.

### *Rodenticides*

The DEIS is unclear regarding whether or not the use of rodenticides will be allowed (BIO-8 in Table 2-9; p. 2-49). The San Joaquin Kit Fox Conservation and Monitoring Plans (Appendix E) state that management practices will *avoid* the use of rodenticides; however, within the same plan, it states that use of rodenticides would be *prohibited*. In addition, according to section 6.4.4 of the U.S. Fish and Wildlife Standardized Recommendations for the Protection of the San Joaquin Kit Fox, the use of rodenticides should be prohibited (p. 41).

#### *Recommendations:*

EPA strongly recommends the DOE follow the U.S. Fish and Wildlife Standardized Recommendations and prohibit the use of rodenticides.

The FEIS should reflect a consistent policy throughout the document on the use of rodenticides.

## Air Quality

The majority of the project is located in the San Luis Obispo County Air Pollution Control District (APCD). The air basin is currently in attainment with all National Ambient Air Quality Standards (NAAQS). The DEIS demonstrated that the emissions from both the construction and the operational phases of this project would conform to the approved State Implementation Plan and would not cause or contribute to violations of the NAAQS. However, the federal action will cause emissions above the de minimis levels for particulates and ozone precursors, including nitrogen oxides. The FEIS should specifically identify measures that could be incorporated to reduce emissions resulting from the project.



*Recommendation:*

EPA recommends that DOE incorporate all of the applicable mitigation measures identified in section 3.4.2 (pp. 3-50 and 3-51) into the project to lower the anticipated emissions.

Hazardous Materials/Hazardous Waste and Decommissioning—CdTe containing Solar Modules

The DEIS discusses potential hazards associated with the use of PV modules containing Cadmium Telluride (CdTe) in section 3.15 (pg 3-228). It states that there is very little Cd present in each module; however, the proposed project would use 9,000,000 modules, which would result in approximately 50 tons of Cd being deployed on site. The EPA agrees that there is little risk of CdTe emissions during normal use, if the modules are properly handled, a systematic method for detection and removal of damaged modules is employed, and the modules are recycled. One review of the available literature by the Fraunhofer Institute stated that the main concerns with CdTe technologies is addressing unexpected incidents, such as releases in the case of fire, uncontrolled disposal, and leaching to groundwater. This review suggested a need for further research related to releases due to fire, as well as for toxicity or ecotoxicity studies<sup>1</sup>. The DEIS cites studies that simulated residential fires; however, the proposed project would be located in a grassland area, which may burn at different temperatures.

The EIR prepared for the project stated that, out of the 9,000,000 modules, it was anticipated that 36,000 modules would break during the three-year construction period, and that an average of 2,880 modules would break per year during operation. The EIR stated that a Broken PV Module Detection and Handling plan would be developed. The DEIS does not include this plan.

Solar plants are designed for life spans of 20 to 30 years. The DEIS states that the proposed facility has a minimum expected lifetime of 30 years, with an opportunity for a lifetime of 50 years or more with equipment replacement and repowering. The life of the proposed Project should be taken into consideration regarding decommissioning and reclamation.

*Recommendations:*

The FEIS should fully disclose the amount of CdTe and Cd that would be on site in the modules.

The FEIS should include a Broken PV Module Detection and Handling plan that will ensure broken modules are adequately detected and handled as California hazardous waste.

The FEIS should include grassland wildfires as a safety risk for the general project area and describe measures that would be taken to minimize such risks.

EPA recommends that the FEIS identify bonding or financial assurance strategies for decommissioning, module recycling, and reclamation.

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<sup>1</sup> Fraunhofer Institute for Mechanics of Materials. Scientific Comment of Fraunhofer to Life Cycle Assessment of CdTe Photovoltaic's July 2010

### Cultural Resources and Coordination with Tribal Governments

The proposed Project could have direct impacts on significant cultural resources. Executive Order 13175, *Consultation and Coordination with Indian Tribal Governments* (November 6, 2000), was issued in order to establish regular and meaningful consultation and collaboration with tribal officials in the development of federal policies that have tribal implications, and to strengthen the United States government-to-government relationships with Indian tribes. The DEIS states that tribal consultation is ongoing (p. 3-199). Concerns raised by the tribes include movement corridors for elk and antelope, possible effects of electrical and magnetic fields, avoidance of Native American sites, buried archaeological sites that may be affected, and possible disruption of dark night sky. The DEIS states that most of these concerns were addressed; however, it also states that the consultation is ongoing.

#### *Recommendation:*

The FEIS should describe the outcome of government-to-government consultation between DOE and each of the tribal governments within the project area, additional issues that were raised (if any), and if how those issues were addressed.

### Miscellaneous Edits

On p. S-14, Table S-2 and 1-12, Table 1-1, the DEIS states that section 2.3.4 describes the recycling and decommissioning of the modules. Additionally, on p. 3-228, the DEIS states that section 2.3.5 describes the recycling and decommissioning of the modules.

#### *Recommendation:*

The FEIS should state that section 2.3.6 describes the recycling and decommissioning of the modules.

On p. 2-52, in Table 2-9, one of the environmental protection measures is listed as HA-6.

#### *Recommendation:*

To be consistent, the environmental protection measure should be Haz-6.